Translation

PCT/DE2003/003123

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 26826	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/DE2003/003123	International filing date (*day/month/year*) 19 September 2003 (19.09.2003)	Priority date (*day/month/year*) 19 September 2002 (19.09.2002)
International Patent Classification (IPC) or national classification and IPC G01N 27/30		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
19 April 2004 (19.04.2004)	25 January 2005 (25.01.2005)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/DE2003/003123

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed

☒ the description:
pages 1-27, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages 1-9, filed with the letter of 30 December 2004 (30.12.2004)

☒ the drawings:
pages 1/4-4/4, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-9	YES
	Claims		NO
Inventive step (IS)	Claims	1-9	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

2. Citations and explanations

This report makes reference to the following document:

D1: EP-A-0 299 778.

Claim 1:

D1 discloses a method for producing a biosensor circuit arrangement (page 5)

- in which an integrated circuit is formed in a substrate (figures 1-7),
- in which a core of an integrated reference electrode is formed by printing on the substrate with silver material as metal (example 1),
- in which subsequently the core of silver material is surrounded, at least in part, by a sleeve made of a salt of the silver material that is not readily soluble, thereby forming the integrated reference electrode (example 1),
- in which the integrated circuit is electrically coupled with the core of the integrated reference electrode (trivial feature).

Therefore, the subject matter of claim 1 differs from the known method in that

- biological molecules are applied to sensor fields of

the biosensor circuit arrangement by means of printing, whereby the sensor fields are biologically activated **and** whereby the printing of silver material onto the substrate and the printing of biological molecules onto the sensor fields takes place **in the same operational step.**

In **D1**, the reference electrode is produced in its entirety before the biological molecules are applied in a further step (see example 2).

Therefore, the subject matter of claim 1 is novel (PCT Article 33(2)).

Consequently, the problem to be solved by the present invention can be regarded as that of significantly reducing the complexity and cost of producing biosensors, since the same printing method is used in a method step in order to apply the reference electrode as that used for the biomolecules. Thereafter, the silver core is oxidized in another method step.

Therefore, the solution to this problem as proposed in claim 1 of the present application involves an inventive step (PCT Article 33(3)).

Claim 2:

Like claim 1, claim 2 contains the additional feature

- that biological molecules are applied to sensor fields of the biosensor circuit arrangement by means of printing, whereby the sensor fields are biologically activated **and** whereby the printing of silver material onto the substrate and the printing of biological molecules onto the sensor fields takes

place in the same operational step.

Therefore, the solution to this problem as proposed in claim 2 of the present application involves an inventive step (PCT Article 33(3)).

Dependent claims 3-9 are therefore also regarded as novel and inventive.